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17.

25

10. $y = 2500 (1 - .2)^2$
 $= \$1600$

$y = 5717 (1.032)^t$
 12,565 billion

11. $y = 85,000 (1 + .05)^t$
 $\$108,483.93$

18. $20,000 = 5717 (1.032)^t$
 $3.498 = (1.032)^t$
 $\frac{\log 3.498}{\log 1.032} = t$

12. $y = a e^{-.0856t}$
 $\frac{1}{2} = e^{-.0856t}$

39.8 yrs = t
 from 1985
 2025

$\ln \frac{1}{2} = -.0856 t$

$w > m$

$8.1 = t$
 days

19.

13. $\frac{1}{12} = e^{-.00012t}$

$62.5 (1 + .0038)^t > 76.5 (1 + .003)^t$
 $(1.0038)^t > 1.224 (1.003)^t$

$\ln(1/12) = -.00012 t$

$t \log(1.0038) > \log(1.224 \times 1.003^t)$

$20,707.6 \text{ yrs} = t$

$t (\log 1.0038) > \log(1.224 \times 1.003^t)$

No Dinosaurs 63 mill years $.000346258 t > \log 1.224$

$t > 253.5$

14. $.005 = e^{-.00012t}$

$1928 + 254$

$44,153 \text{ yrs} = t$

2182

15. $2 = e^{K(25)}$
 $.0347 = 1/K$

16. $y = a e^{.0347t}$